	Application No.	Applicant(s)	
Notice of Allowability	09/709,211	WILLIAMS ET AL.	
	Examiner	Art Unit	
	C. Michelle Tarae	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *communication filed March 26, 2007*.

2. ☒ The allowed claim(s) is/are *1-48*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
        Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

ALLOWANCE

1.   The following is an Allowance in response to the communication submitted on

March 26, 2007. Claims 1-48 are now pending in this application.

Reasons for Allowance

2.   Claims 1-48 are allowed.

3.   The following is an examiner's statement of reasons for allowance: None of the

prior art of record, taken individually or in any combination, teach, *inter alia*, populating a

facts database with the transition table format information to produce at least one of a

plurality of facts tables with a summarization of the transition table format information,

wherein the facts tables are structured hierarchically; denormalizing the summarization

of the transition table format information to produce a plurality of denormalized

information, wherein denormalizing comprises propagating information from one table to

another, wherein each of the tables is at a different level of a hierarchical structure

based on the hierarchy of the facts tables, as recited in independent claims 1, 10, 15, 20

and 21.

        Additionally, none of the prior art of record, taken individually or in any

combination, teach, *inter alia*, generating a first lookup table for a lookup database,

wherein the first lookup table comprises a first level of a hierarchical structure;

generating a second lookup table for a lookup database by propagating at least a

portion of information from the first lookup table to the second lookup table, wherein the

second lookup table comprises a second level of the hierarchical structure, below the

first level; and generating a key table by denormalizing the first and second lookup

tables in the facts database, wherein the key table comprises the first and second levels

of the hierarchical structure, as recited in independent claims 28 and 42.

Applicant's arguments on pages 15-17 of the Remarks filed March 26, 2007 have

been found persuasive and are commensurate in scope with the originally filed

disclosure.

The prior art most closely resembling Applicant's claimed invention are as

follows: Chaudhuri, "An overview of data warehousing and OLAP technology," 1997,

Frangione et al. (U.S. 6,516,189) and Melchione et al. (U.S. 5,930,764).

Chaudhuri teaches a database design methodology using entity diagrams that

includes a star schema data model that utilizes a fact table. However, Chaudhuri

discloses that star schemas do not provide support for attribute hierarchies. Chaudhuri

further teaches snowflake schemas that represent dimensional hierarchies, however

such representation is performed by normalizing the dimension tables. Thus,

Chaudhuri does not disclose populating a facts database with the transition table format

information to produce at least one of a plurality of facts tables with a summarization of

the transition table format information, wherein the facts tables are structured

hierarchically; denormalizing the summarization of the transition table format information

to produce a plurality of denormalized information, wherein denormalizing comprises propagating information from one table to another, wherein each of the tables is at a different level of a hierarchical structure based on the hierarchy of the facts tables. Nor does Chaudhuri disclose generating a first lookup table for a lookup database, wherein the first lookup table comprises a first level of a hierarchical structure; generating a second lookup table for a lookup database by propagating at least a portion of information from the first lookup table to the second lookup table, wherein the second lookup table comprises a second level of the hierarchical structure, below the first level; and generating a key table by denormalizing the first and second lookup tables in the facts database, wherein the key table comprises the first and second levels of the hierarchical structure.

Melchione et al. teaches a sales and marketing support system that utilizes a customer information database. The system uses key tables to conduct JOIN operations on the database tables to extract desired data from the database tables. However, Melchione et al. does not disclose populating a facts database with the transition table format information to produce at least one of a plurality of facts tables with a summarization of the transition table format information, wherein the facts tables are structured hierarchically; denormalizing the summarization of the transition table format information to produce a plurality of denormalized information, wherein denormalizing comprises propagating information from one table to another, wherein each of the tables is at a different level of a hierarchical structure based on the

hierarchy of the facts tables. Nor does Melchione et al. disclose generating a first

lookup table for a lookup database, wherein the first lookup table comprises a first level

of a hierarchical structure; generating a second lookup table for a lookup database by

propagating at least a portion of information from the first lookup table to the second

lookup table, wherein the second lookup table comprises a second level of the

hierarchical structure, below the first level; and generating a key table by denormalizing

the first and second lookup tables in the facts database, wherein the key table

comprises the first and second levels of the hierarchical structure.

Frangione et al. teaches a data mining application for marketing purposes that

aggregates and analyzes customer-marketing data to product summary tables.

However, Frangione et al. does not disclose populating a facts database with the

transition table format information to produce at least one of a plurality of facts tables

with a summarization of the transition table format information, wherein the facts tables

are structured hierarchically; denormalizing the summarization of the transition table

format information to produce a plurality of denormalized information, wherein

denormalizing comprises propagating information from one table to another, wherein

each of the tables is at a different level of a hierarchical structure based on the

hierarchy of the facts tables. Nor does Frangione et al. disclose generating a first

lookup table for a lookup database, wherein the first lookup table comprises a first level

of a hierarchical structure; generating a second lookup table for a lookup database by

propagating at least a portion of information from the first lookup table to the second

lookup table, wherein the second lookup table comprises a second level of the

hierarchical structure, below the first level; and generating a key table by denormalizing

the first and second lookup tables in the facts database, wherein the key table

comprises the first and second levels of the hierarchical structure.

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

- Warren et al. (U.S. 6,694,322) discusses a caching scheme for multidimensional

   data;

- Raitto et al. (U.S. 5,991,754) discusses rewriting a query when a dimension table

   is on the child side of an outer join;

- JP 10177578 A discusses improving the response of database retrieval by using

   only limited keys.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to C. Michelle Tarae whose telephone number is 571-272-

6727. The examiner can normally be reached Monday – Friday from 8:30am to

5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tariq Hafiz, can be reached at 571-272-6729.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

C. MICHELLE TARAE
PRIMARY EXAMINER

May 30, 2007